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ABSTRACT

The effects of individual personality differences and awareness of experimental demands on the acquisition of a verbal behavior were investigated. Awareness was determined by a recognition task. The personality variable was a measure of the agreeing response set to Likert-scaled personality items. Subjects were grouped as extreme or moderate responders. The tendency to respond extremely was viewed as a type of deviant behavior, related to other nonconforming behavior, and growing out of early socialization patterns. Unaware subjects showed no performance gains, which is consistent with a cognitive viewpoint. Among aware subjects, moderates showed high performance gains, while extremes showed only small gains. A breakdown of extremes into highs (yeasayers) and lows (naysayers) revealed that 77 percent of the yeasayers and 33 percent of the nay sayers became aware, as compared to 50 percent of the moderates. These findings were discussed in terms of the need to consider individual differences in the statement of general behavioral laws. (Author)

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Awareness and Response Style in the Acquisition of a Verbal Behavior

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Presented at the American Educational Research Association Meeting, Chicago, Illinois, 1974.

Awareness and Response Style in the Acquisition of a Verbal Behavior

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The relation of awareness to verbal behavior has been widely investigated. A growing body of evidence suggests that, at least in verbal conditioning experiments that require the subject to learn a concept, verbal behavior does not change "in the absence of the subject's ability to verbalize mediational steps that occur between the stimulus conditions and changes in his behavior." (Eriksen, 1962)

While awareness may be a precondition for an increase in the desired behavior, not all subjects who express awareness go on to show increased performance rates. This study examines the hypothesis that personality characteristics interact with awareness to produce different levels of response.

The results of verbal reinforcement experiments may be questioned on the grounds that Ss may learn, or know what it is that E wishes them to do, and nonetheless not perform, and that personality differences may be important factors in the failure to perform in the presence of awareness. Previous studies (Babladelis, 1961; Vestre, 1962) in which personality variables in verbal learning have been examined have not made this distinction with sufficient clarity, and thus it remains unclear whether personality differences have been related to learning or to performance. There is need for a study of the interaction of personality and awareness in which learning and performance are defined by separate measurement operations.

For the present study, a personality variable was sought which might be fairly widely distributed and easy to test for. A review of the literature

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[1] This research was done in partial fulfillment of the requirements for the Ph.D. at Yeshiva University, under the sponsorship of Dr. N. Gordon.

of personality evaluation (Cronbach, 1950; Jackson and Messick, 1958; Christie and Lindauer, 1962)suggested that stylistic response to paper and pencil inventories might be a more useful variable to explore than content-based responses. Couch and Keniston (1960) developed a 15-item scale (CKS) which they purport to be heterogeneous in content. Each item is rated on a 7-point Likert scale, and Ss are differentiated as yeasayers (high agreers) and nay-sayers (high disagreers). Because of content heterogeny, the score is considered to reflect response-style differences. Reliabilities ranging from .54 to .86 have been reported for the CKS (Couch and Keniston, 1960; McGee, 1962; Quinn and Lichtenstein, 1965).

Method

Ss

267 Suburban, white, middle-class academically tracked high school juniors and seniors volunteered to take the CKS. 100 experimental Ss were obtained by ranking all 267 Ss and contacting them in order of their closeness to the mean in the case of the "moderate" group or their closeness to the most extreme high or low score, until 50 moderate and 50 extreme scores were identified. An analysis of variance of the means for high, moderate and low scorers was significant ($F=616.3$; $p < .001$).

Procedure

Ss entered a typical modern, fluorescent-lighted high-school classroom, with a teacher's desk and about 30 moveable desk-chairs. Two desk chairs were placed face to face close to the entrance of the room. S was ushered into the room and seated opposite E. E held a clipboard which was shielded from S by a cardboard shield. S was asked his name, age, and whether he was a junior or senior. A stack of cards was then placed before S, who was instructed as follows:

"When I turn these cards over (E pointed to stimulus cards) you will see a word in the center of each card. I want you to make up a sentence using this word. Below the word in the center, you will see a group of other words. Take any one of these and use it to start your sentence. (Pause) Now, it doesn't matter whether the sentence you make up is long or short, or even if it is complicated or simple. It is important that you answer with the first sentence that enters your mind. It isn't easy to do this but you will find that if you try to answer as quickly as possible, you are more likely to give the first thing that comes into your mind. Any questions? (Pause) Let's begin." (After Taffel, 1955)

For trials 1 - 20, no reinforcement was offered, but the word with which each sentence was begun was noted on a response tally form. For trials 21 - 100, E said "good" in a soft, flat intonation immediately after each sentence beginning with either I or We.

At the conclusion of trial 100, S was handed a sheet with the six pronouns typed as follows: HE WE SHE I THEY YOU.

A stopwatch was activated in clear view of S (to insure a speed set) and Ss were asked to "underline the word or words you think I wanted you to say." A measure of latency between the end of the question and the first touch of pencil to paper was recorded. Criterion for a "correct" response was one or both of the correct pronouns and no incorrect underlinings.

At the conclusion of the experiment, E explained to each S that this was an experiment in learning, and that the stimulus cards were in no way intended to find out anything about his emotions. Ss were then asked to say nothing to anyone else about the study, because that would invalidate the results of the study.

Design

The design was a 2 x 2 factorial with two levels of awareness (Aware and Unaware) and two levels of personality (Moderate CKS and Extreme CKS).

Results

An unexpected finding was that the distribution of awareness between yeasayers and naysayers was strikingly different. Of the 48 extreme CKS scorers, 27 were yeasayers (highs) and 21 were naysayers (lows). Of the 27 yeasayers, 21 were aware, while of the 21 naysayers, only 7 were aware ($\chi^2 = 10.20$, $p < .01$). In light of this finding, a 2x3, two-way analysis of variance was performed (Table 2) to determine whether it was appropriate to group highs and lows together as "Extremes."

Table 2

Mean Number and Analysis of Variance of "I-We" Responses for Conditioning Trials 21 - 100 with Three Levels of CKS.

	Aware	Unaware
Low	42.86	32.38
Moderate	50.54	30.27
High	37.00	35.00

Source	SS	df	MS	F	P
Awareness	2186.49	1	2186.49	18.57	<.005
Personality	242.94	2	121.469	1.03	ns
Awareness X Personality	1023.13	2	511.56	4.34	<.05
Error (within)	10833.13	92	117.75		

This analysis indicated a significant interaction between personality and awareness beyond the .05 level of probability. Comparisons of means were made using Winer's (1971) test for unweighted means with unequal cell frequencies. High (Yeasayer) and low (Naysayer) aware cells showed no significant differences ($t = 1.24$). A test was then made to determine whether lows and moderates differed. There was a small but significant difference ($t = 1.71$, $p < .05$).

The fact that Low and High Awares did not differ from one another, but did differ from Moderate Awares supports the procedure of combining highs and lows as Extremes.

It should be noted, however, that there were disproportionately fewer aware Ss among the Naysayers than among Yeasayers or Moderates. In other words, Yeasayers are more likely to become aware than Naysayers, but, once aware, Yeasayers and Naysayers are alike in performing less well than aware Moderates.

With the above proviso in mind, a 2x2 two-way analysis was performed. Awareness and personality and their interaction were tested and found to differ significantly beyond the .005 level of probability. That is to say, aware Ss performed significantly higher than unaware Ss, moderate CKS scorers did significantly better than extreme CKS scorers, and there was a significant interaction between awareness and personality in the acquisition of a verbal response.

In order to utilize the analysis of variance technique for the 80 conditioning trials, it was necessary to first determine whether there were significant differences in trials 1 - 20, which were included to determine an operant rate for I - We sentences. The analysis of variance for the operant trials revealed no significant differences. (Table 3)

Table 3

Mean Number and Analysis of Variance of "I - We"

Responses for Nonreinforced Trials 1 - 20.

Aware			Unaware		
Moderates	Extremes		Moderates		Extremes
8.29	7.75		7.30		7.40
Source	SS	df	MS	F	p
Awareness	10.73	1	10.73	1.774	ns
Personality	1.22	1	1.22	0.202	ns
Error (within)	568.551	94	6.05		

Once it was established that there were no significant differences among the groups for the 20 operant trials, and that high and low extreme CKS groups did not differ significantly, a 2x2 two-way analysis of variance was performed on the 80 acquisition trials in order to test two main effects hypotheses and one interaction hypothesis. (Table 4)

Table 4

Mean Number and Analysis of Variance of "I-We" Responses for Conditioning Trials 21 - 100 with Two Levels of CKS.

Aware		Unaware	
Moderate	Extreme	Moderate	Extreme
50.54	38.46	30.27	33.30

Source	SS	df	MS	F	P
Awareness	3901.39	1	3901.39	33.21	$< .005$
Personality	493.50	1	493.50	4.20	$< .05$
Awareness X Personality	1376.40	1	1376.40	11.715	$< .005$
Error (within)	11044.31	94	117.49		

Hypothesis 1 stated that "Aware Ss, i.e., those who can correctly identify one or both reinforced responses, will emit significantly more correct responses than Unaware Ss."

Aware Ss did perform at a significantly higher level than unaware Ss ($p < .005$). This finding indicates that awareness is an important determinant of performance in the verbal conditioning situation. A projection of the mean operant rate of 7.58 yields a projected rate for the remaining 80 trials of 30.32. In fact, the acquisition mean for all unaware Ss was 31.58, a negligible difference. This supports the inference that awareness is a necessary, if not sufficient, condition for performance.

Table 5

Mean Number of "I-We" Responses for Conditioning Trials 21 - 100 (Aware vs. Unaware).

Aware	Unaware
44.04	31.58

The second hypothesis stated that "Moderate CKS scorers will emit significantly more correct responses than will extreme CKS scorers."

Moderate CKS scorers performed at a significantly higher level than extreme scorers ($p < .05$). This finding supports the hypothesis that the tendency to respond extremely to CKS items is related to nonconforming behavior in other social situations.

Table 6

Mean Number of "I-We" Responses for Conditioning Trials 21 - 100 (Moderates vs. Extremes).

Moderates	Extremes
40.00	36.18

The third hypothesis stated that "There will be a significant interaction between awareness and the personality variable, i.e., aware Ss with moderate CKS scores will perform significantly higher than aware Ss with extreme CKS scores."

The analysis of variance revealed a significant interaction between awareness and the personality variable (see Table 4, p.50). Thus, the interaction of awareness and personality factors in a Taffel-type verbal conditioning experiment account for more of the variance than either awareness or personality alone. (Figure 1)

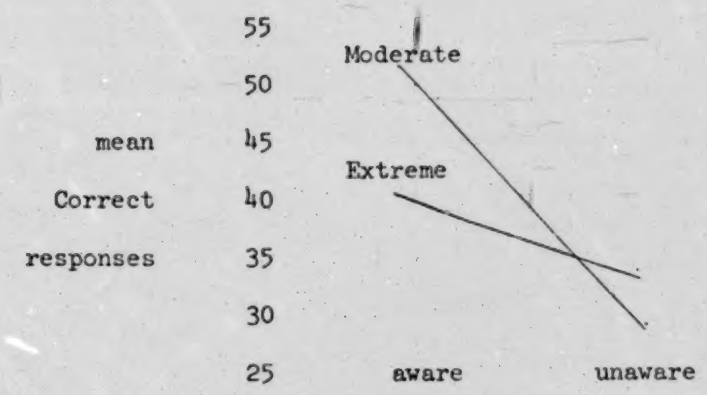

Fig. 1. The interaction of Moderate and Extreme CKS plotted against awareness and unawareness.

In order to shed light upon the nature of the interaction, statistical followups on the appropriate cells were performed (Winer, 1971) with the following findings.

Table 7

Statistical Followups of Means Difference Based on Analysis of Variance of Conditioning Trials 21 - 100.

Pairing	Means	Difference	N's	t	p
Aware-Moderates vs. Unaware-Moderates	50.54 vs. 30.27	20.27	24 & 26	6.65	$< .005$
Aware-Extremes vs. Unaware-Extremes	38.46 vs. 33.30	5.16	28 & 20	1.63	$> .05$
Aware-Moderates vs. Aware-Extremes	50.54 vs. 38.46	12.08	24 & 28	4.07	$< .005$
Unaware-Moderates vs. Unaware-Extremes	30.27 vs. 33.30	3.03	26 & 20	0.94	ns

Aware-Moderates performed significantly higher than Aware-Extremes ($p < .005$). Both groups share a knowledge of what E expected of them. They differ only in the personality variable. This supports the hypothesis that awareness alone does not guarantee compliance.

On the other hand, the difference in levels of performance between the Aware-Moderate and the Unaware-Moderate groups ($p. < 005$) supports the theory that awareness is a necessary condition for the performance of a complex verbal behavior in a Taffel-type experiment. While moderates may have a predisposition to respond to the demands of E, granted that they know what is expected of them, in the absence of that awareness, performance gains do not occur. There may be a "will," but there is no "way."

The mean difference between the Aware-Extreme and the Unaware-Extreme groups just barely misses significance at the .05 level of probability. This suggests that the personality factor has an important interaction effect with awareness in depressing the performance level.

The mean performance differences between the aware and unaware moderates and the aware and unaware extremes are most striking. Among moderate Ss, the difference between the aware and unaware groups was 20.27 ($p < .005$), while aware and unaware extremes showed a difference of only 5.16 ($p > .05$). The magnitude of this difference indicates the powerful interaction between the personality variable and awareness. The performance of CKS Ss is depressed to a point that the mean difference between the aware and unaware extreme groups is a bit less than one quarter of the difference between the aware and unaware moderate groups.

Thus, while taken as an independent variable, the personality factor appears to be of relatively small magnitude in comparison with the awareness variable, its interaction effect is most potent.

Summary

While awareness and personality (as operationalized by moderate or extreme score on the CKS) both contribute to an understanding of behavior in the verbal conditioning experimental situation, an understanding of the interaction of awareness and personality enhances the understanding of the complex behavior exhibited in verbal conditioning experiments. The evidence supports the

hypothesis that aware Ss perform better than unaware Ss, and that moderates perform better than extremes, but that the interaction of awareness and personality accounts for a greater portion of the variance than either awareness or personality alone. Further, a breakdown of Extremes showed differences in the distribution of awareness; Yeasayers achieved 77% awareness, Naysayers 33%, and Moderates 50%.

Discussion

This study has concerned itself with the manner in which the subject's perception of experimental demands and differences in an aspect of personality interact to effect performance in a verbal conditioning experiment. It explored the possibility that Ss who are alike in that they can correctly identify what was expected of them in the experimental situation may differ so in some other dimension that they perform quite differently. In other words, if individual differences in personality are not taken into account, we may confuse learning and performance, and mislabel a failure to perform as a failure to learn.

The confirmation of the hypothesis of interaction between personality and awareness serves as a reminder that when we examine the relationship between a stimulus and a response, it is important to keep in mind that a person intervenes between that stimulus and that response. Just as differences in level of response can be accounted for in part by manipulation of the stimulus conditions, so can they in part be accounted for by differences among Ss. It is worthwhile, in expressing a behavioral law, to consider the possibility that the law may be limited to particular classes of Ss.

Important decisions are often made about individuals in terms of their performance in standardized situations, such as intelligence tests, aptitude tests, performance criterion evaluations, and the like. The findings of this study would suggest that, where an individual does not perform well in a given situation, it is likely that, given a different set of performance demands, he

might well perform differently.

These findings also have implications for the question of whether the reinforcing stimulus ("good," in this case) is a factor in the acquisition of a verbal response because of its clue properties, its reward properties, or both. The present study provides some evidence that the reinforcing stimulus has an effect both as a source of information and as a stimulus for performance, but that the stimulus may operate variably in each role. A subject may become sensitized to what the correct class of responses is, thus responding to the "clue" quality of "good," but not produce a great number of "correct" responses, perhaps because he has not experienced hearing "good" as a rewarding experience theretofore. Aware-Extremes appear to respond in this manner, while Aware-Moderates seem to respond to the stimulus both as a clue and as a reward.

The question of why some individuals pick up the clue qualities and others do not is of great interest. This study has concerned itself with the interaction of awareness and personality. A study of how awareness developes, and the role that personality structure plays in awareness were not within the purview of the study, but the observation that the distribution of awareness differed strongly, with about 50% of Moderates showing awareness, 77% of yeasayers, and only 33% of naysayers, suggests that differences in personality may also play a part in whether or not awareness occurs.

The differences in the distribution of awareness seem consistent with Couch and Keniston's assertion that yeasayers seek impulse gratification, while naysayers suppress impulse gratification. Thus, yeasayers may be alert to the clue inherent in "good", even though resistant to its behavior-reinforcing value, and naysayers may be less alert to the clue value, but resistant to the behavior-reinforcing value when they are aware. Normals become aware about 50% of the time, but when they are aware, they tend to show high performance levels. Thus, aware normals respond to both the clue and behavior-reinforcing qualities of "good."

Further research using this personality measure might lead to a clearer understanding of what environmental stimuli would provide optimal learning conditions for those who show a deficit in either awareness development or performance as a function of the usual verbal reinforcers.

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Appendix 1

Couch-Keniston Scale (Short Form)

Tel. _____

Name _____ Age _____ Home Room_____ Year _____

1. Novelty has a great appeal to me.

Strongly Agree Agree Slightly Agree No Answer Slightly Disagree Disagree Strongly Disagree

2. I crave excitement.

Strongly Agree Agree Slightly Agree No Answer Slightly Disagree Disagree Strongly Disagree

3. It's a wonderful feeling to sit surrounded by your possessions.

Strongly Agree Agree Slightly Agree No Answer Slightly Disagree Disagree Strongly Disagree

4. There are few things more satisfying than really to splurge on something - books, clothes, furniture, etc.

Strongly Agree Agree Slightly Agree No Answer Slightly Disagree Disagree Strongly Disagree

5. Only the desire to achieve great things will bring a man's mind into full activity.

Strongly Agree Agree Slightly Agree No Answer Slightly Disagree Disagree Strongly Disagree

6. Nothing is worse than an offensive odor.

Strongly Agree Agree Slightly Agree No Answer Slightly Disagree Disagree Strongly Disagree

7. In most conversations, I tend to bounce from topic to topic.

Strongly Agree Agree Slightly Agree No Answer Slightly Disagree Disagree Strongly Disagree

8. I really envy the man who can walk up to anybody and tell him off to his face.

Strongly Agree Agree Slightly Agree No Answer Slightly Disagree Disagree Strongly Disagree

9. I could really shock people if I said all of the dirty things I think.

Strongly Agree Agree Slightly Agree No Answer Slightly Disagree Disagree Strongly Disagree

10. There are few more miserable experiences than going to bed night after night knowing you are so upset that worry will not let you sleep.

Strongly Agree Agree Slightly Agree No Answer Slightly Disagree Disagree Strongly Disagree

Please go to the next page.

Name _____(do nct omit)

11. I tend to make decisions on the spur of the moment.

Strongly Agree Agree Slightly Agree No Answer Slightly Disagree Disagree Strongly Disagree

12. Little things upset me.

Strongly Agree Agree Slightly Agree No Answer Slightly Disagree Disagree Strongly Disagree

13. Drop reminders of yourself wherever you go and your life's trail will be well remembered.

Strongly Agree Agree Slightly Agree No Answer Slightly Disagree Disagree Strongly Disagree

14. I like nothing better than having breakfast in bed.

Strongly Agree Agree Slightly Agree No Answer Slightly Disagree Disagree Strongly Disagree

15. My mood is easily influenced by the people around me.

Strongly Agree Agree Slightly Agree No Answer Slightly Disagree Disagree Strongly Disagree